

Docket No.: K-0586

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS AND INTERFERENCE**

In re Application of

Confirmation No.: 6624

Jong Chul BANG

Group Art Unit: 3749

Serial No.: 10/721,179

Examiner: Kenneth RINEHART

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Customer No.: 34610

For: DRYER

APPEAL BRIEF

U.S. Patent and Trademark Office
Customer Window, Mail Stop Appeal Brief-Patents
Randolph Building
401 Dulany Street
Alexandria, Virginia 223134

Sir:

This appeal is taken from the rejection of claims as set forth in the Office Action dated January 14, 2008 (hereinafter "the Office Action"). In accordance with 37 C.F.R. §41.37, Applicant addresses the following items.

REAL PARTY IN INTEREST

The real party in interest is the assignee, LG Electronics Inc. The assignment document is recorded at Reel 014750 and Frame 0493.

RELATED APPEALS AND INTERFERENCES

There are no related appeals and interferences.

STATUS OF THE CLAIMS

This is an appeal from the final rejection dated January 14, 2008 of claims 1-4, 6, 7, 9-13, 15, 16, 18, 20, 21, 23-29, 31, 32 and 37-41. No other claims are pending. All of pending claims 1-4, 6, 7, 9-13, 15, 16, 18, 20, 21, 23-29, 31, 32 and 37-41 stand rejected. Claims 5, 8, 14, 17, 19, 22, 30 and 33-36 have been canceled.

STATUS OF AMENDMENTS

All Amendments filed in this application have been entered. A copy of appealed claims 1-4, 6, 7, 9-13, 15, 16, 18, 20, 21, 23-29, 31, 32 and 37-41 appears in the attached Claims Appendix.

SUMMARY OF THE CLAIMED SUBJECT MATTER

As stated in 37 C.F.R §41.37(c)(v), Applicant is providing the following explanation of each of independent claims 1, 10, 24 and 37, as well as dependent claims 6, 15, 20, 21, 26-29 and 38-41, involved in this appeal. This explanation refers to the specification and drawings. The following is merely an example summary and is not intended to be a discussion of the full and

entire scope of the claims. Other interpretations, configurations and embodiments are also within the scope of the pending claims.

Independent Claim 1

Independent claim 1 recites a dryer, comprising a cabinet, a drum provided in the cabinet and in rotational communication with a motor, and a heater assembly coupled to the drum, comprising a heater case having an air passage formed therein, a plate that partitions the air passage into an upper passage and a lower passage, and independent first and second coil arrays provided in the air passage, wherein the first coil array crosses the plate multiple times such that a plurality of first coils of the first coil array are alternately positioned in the upper and lower passages, and the second coil array crosses the plate multiple times such that a plurality of second coils of the second coil array are alternately positioned in the upper and lower passages, wherein the first and second coils positioned in the upper passage form an alternating pattern in the upper passage, and the first and second coils positioned in the lower passage form an alternating pattern in the lower passage such that each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate.

For example, the exemplary embodiment shown in Figures 1-2 of the present application illustrates a dryer, comprising a cabinet 3, a drum 12 provided in the cabinet 3 and in rotational communication with a motor 32, and a heater assembly 18 coupled to the drum 12 (Figs. 1-2 and paragraphs 26-28). The exemplary embodiment of the heater assembly 18 shown in Figure

3 of the present application illustrates a heater case 53 having an air passage formed therein, a plate 56 that partitions the air passage into an upper passage 53a and a lower passage 53b, and independent first and second coil arrays 60 and 70 provided in the air passage (Fig. 3 and paragraphs 37-40). The first coil array 60 crosses the plate 56 multiple times such that a plurality of first coils 61-66 of the first coil array 60 are alternately positioned in the upper and lower passages 53a and 53b, and the second coil array 70 crosses the plate 56 multiple times such that a plurality of second coils 71-76 of the second coil array 70 are alternately positioned in the upper and lower passages 53a and 53b (Fig. 3 and paragraphs 41-43). The first and second coils 61, 63, 65, 72, 74 and 76 positioned in the upper passage 53a form an alternating pattern in the upper passage 53a, and the first and second coils 62, 64, 66, 71, 73 and 75 positioned in the lower passage 53b form an alternating pattern in the lower passage 53b such that each of the plurality of first coils 61-66 is positioned substantially directly across from a corresponding second coil 71-76 of the plurality of second coils 71-76 on the opposite side of the plate 56 (Fig 3 and paragraph 44).

Dependent Claim 6

Dependent claim 6 depends from independent claim 1. Dependent claim 6 recites that upper and lower portions of each of the first and second coil arrays are positioned along centerlines of the upper and lower passages, respectively. For example, in the exemplary embodiment shown in Figure 3 of the present application, upper 61, 63, 65, 72, 74 and 76 and

lower 62, 64, 66, 71, 73 and 75 portions of each of the first and second coil arrays 60 and 70 are positioned along centerlines of the upper and lower passages 53a and 53b, respectively (Fig. 3 and paragraph 46).

Dependent Claim 20

Dependent claim 20 depends from claim 3, which depends from independent claim 1. Dependent claim 20 recites that the plate is positioned along the predetermined line of symmetry of the air passage. For example, in the exemplary embodiment shown in Figure 3 of the present application, the plate 56 is positioned along the predetermined line of symmetry of the air passage (Fig. 3 and paragraph 44).

Dependent Claim 38

Dependent claim 38 depends from independent claim 1. Dependent claim 38 recites that at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages. For example, in the exemplary embodiment shown in Figure 3 of the present application, at least one of the plurality of first coils 61-66 is positioned between two adjacent second coils 71-76, and at least one of the plurality of second coils 71-76 is positioned between two adjacent first coils 61-66 in each of the upper and lower passages 53a and 53b (Fig. 3 and paragraphs 41-44).

Independent Claim 10

Independent claim 10 recites a heater assembly for a dryer, comprising a heater case having an air passage formed therein, a plate that partitions the air passage into an upper passage and a lower passage, and independent first and second coil arrays provided in the air passage, wherein the first coil array comprises a plurality of first coils alternately positioned in the upper and lower passages, and the second coil array comprises a plurality of second coils alternately positioned in the upper and lower passages such that the first and second coils positioned in the upper passage form an alternating pattern in the upper passage, and the first and second coils positioned in the lower passage form an alternating pattern in the lower passage, wherein each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate.

For example, in the exemplary embodiment shown in Figure 3 of the present application, the heater assembly 18 comprises a heater case 53 having an air passage formed therein, a plate 56 that partitions the air passage into an upper passage 53a and a lower passage 53b, and independent first and second coil arrays 60 and 70 provided in the air passage (Fig. 3 and paragraphs 37-40). The first coil array 60 comprises a plurality of first coils 61-66 alternately positioned in the upper and lower passages 53a and 53b, and the second coil array 70 comprises a plurality of second coils 71-76 alternately positioned in the upper and lower passages 53a and 53b such that the first and second coils 61, 63, 65, 72, 74 and 76 positioned in the upper passage 53a form an alternating pattern in the upper passage 53a, and the first and second coils 62, 64,

66, 71, 73 and 75 positioned in the lower passage 53b form an alternating pattern in the lower passage 53b (Fig. 3 and paragraphs 41-44). Each of the plurality of first coils 61-66 is positioned substantially directly across from a corresponding second coil of the plurality of second coils 71-76 on the opposite side of the plate 56 (Fig. 3 and paragraph 44).

Dependent Claim 21

Dependent claim 21 depends from claim 12, which depends from independent claim 10. Dependent claim 21 recites that the plate is positioned along the predetermined line of symmetry of the air passage. For example, in the exemplary embodiment shown in Figure 3 of the present application, the plate 56 is positioned along the predetermined line of symmetry of the air passage (Fig. 3 and paragraph 44).

Dependent Claim 39

Dependent claim 39 depends from independent claim 10. Dependent claim 39 recites that at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages. For example, in the exemplary embodiment shown in Figure 3 of the present application, at least one of the plurality of first coils 61-66 is positioned between two adjacent second coils 71-76, and at least one of the plurality of second coils 71-76 is positioned between two adjacent first coils 61-66 in each of the upper and lower passages 53a and 53b (Fig. 3 and paragraphs 41-44).

Dependent Claim 41

Dependent claim 41 depends from independent claim 10. Dependent claim 41 recites that the independent first and second coil arrays each alternately cross the plate between the upper and lower passages multiple times so as to form the alternating patterns of first and second coils in the upper and lower passages. For example, in the exemplary embodiment shown in Figure 3 of the present application, the independent first and second coil arrays 60 and 70 each alternately cross the plate 56 between the upper and lower passages 53a and 53b multiple times so as to form the alternating patterns of first and second coils 61-66 and 71-76 in the upper and lower passages 53a and 53b (Fig. 3 and paragraphs 41-44).

Independent Claim 24

Independent claim 24 recites a heater assembly for a dryer, comprising a heater case, a plate provided in the case so as to partition the case into an upper portion and a lower portion, a first coil array comprising a plurality of first coils, the plurality of first coils comprising a plurality of upper first coils positioned in the upper portion of the case, and a plurality of lower first coils positioned in the lower portion of the case, and a second coil array comprising a plurality of second coils, the plurality of second coils comprising a plurality of upper second coils positioned in the upper portion of the case, and a plurality of lower second coils positioned in the lower portion of the case, wherein the plurality of upper first and second coils are arranged in the upper portion such that an upper first coil is disposed between two upper second coils and an

upper second coil is disposed between two upper first coils so as to form an alternating pattern of upper first and second coils in the upper portion, and the plurality of lower first and second coils are arranged in the lower portion such that a lower first coil is disposed between two lower second coils and a lower second coil is disposed between two lower first coils so as to form an alternating pattern of lower first and second coils in the lower portion.

For example, in the exemplary embodiment shown in Figure 3 of the present application, the heater assembly 18 comprises a heater case 53, a plate 56 provided in the case 53 so as to partition the case 53 into an upper portion 53a and a lower portion 53b, a first coil array 60 comprising a plurality of first coils 61-66, the plurality of first coils 61-66 comprising a plurality of upper first coils 61, 63 and 65 positioned in the upper portion 53a of the case 53, and a plurality of lower first coils 62, 64 and 66 positioned in the lower portion 53b of the case 53, and a second coil array 70 comprising a plurality of second coils 71-76, the plurality of second coils 71-76 comprising a plurality of upper second coils 72, 74 and 76 positioned in the upper portion 53a of the case 53, and a plurality of lower second coils 71, 73 and 75 positioned in the lower portion 53b of the case 53. The plurality of upper first and second coils 61, 63, 65, 72, 74 and 76 are arranged in the upper portion 53a such that an upper first coil 61, 63 or 65 is disposed between two upper second coils 72, 74 and 76 and an upper second coil 72, 74 or 76 is disposed between two upper first coils 61, 63 and 65 so as to form an alternating pattern of upper first and second coils 61, 63, 65, 72, 74 and 76 in the upper portion 53a, and the plurality of lower first and second coils 62, 64, 66, 71, 73 and 75 are arranged in the lower portion 53b such that a

lower first coil 62, 64 or 66 is disposed between two lower second coils 71, 73 and 75 and a lower second coil 71, 73 or 75 is disposed between two lower first coils 62, 64 and 66 so as to form an alternating pattern of lower first and second coils 62, 64, 66, 71, 73 and 75 in the lower portion 53b (Fig. 3 and paragraphs 37-44).

Dependent Claim 26

Dependent claim 26 depends from claim 25, which depends from independent claim 24. Dependent claim 26 recites that the first coil array crosses the plate each time the first coil array alternates between the upper and lower first coils so as to alternately position first coils in the upper and lower passages. For example, in the exemplary embodiment shown in Figure 3 of the present application, the first coil array 60 crosses the plate 56 each time the first coil array 60 alternates between the upper 61, 63 and 65 and lower 62, 64, 66 first coils 61-66 so as to alternately position first coils 61-66 in the upper and lower passages 53a and 53b (Fig. 3 and paragraphs 41-44).

Dependent Claim 27

Dependent claim 27 depends from claim 26, which depends from claim 25, which depends from independent claim 24. Dependent claim 27 recites that the second coil array is configured to operate as a single unit independent of the first coil array, and wherein the plurality of second coils are arranged in the second coil array such that the upper and lower second coils form an alternating pattern. For example, in the exemplary embodiment shown in Figure 3 of the present application, the second coil array 70 is configured to operate as a single unit

independent of the first coil array 60, and wherein the plurality of second coils 71-76 are arranged in the second coil array 70 such that the upper 72, 74 and 76 and lower 71, 73 and 75 second coils 71-76 form an alternating pattern (Fig. 3 and paragraphs 41-44).

Dependent Claim 28

Dependent claim 28 depends from claim 27, which depends from claim 26, which depends from claim 25, which depends from independent claim 24. Dependent claim 28 recites that the alternating pattern formed by the upper and lower first coils is a mirror image of the alternating pattern formed by the upper and lower second coils. For example, in the exemplary embodiment shown in Figure 3 of the present application, the alternating pattern formed by the upper and lower first coils 61-66 is a mirror image of the alternating pattern formed by the upper and lower second coils 71-76 (Fig. 3 and paragraph 44).

Dependent Claim 29

Dependent claim 29 depends from claim 27, which depends from claim 26, which depends from claim 25, which depends from independent claim 24. Dependent claim 29 recites that the second coil array is configured to cross the plate each time the second coil array alternates between the upper and lower second coils. For example, in the exemplary embodiment shown in Figure 3 of the present application, the second coil array 70 is configured to cross the plate 56 each time the second coil array 70 alternates between the upper 72, 74 and 76 and lower 71, 73 and 75 second coils 71-76 (Fig. 3 and paragraphs 41-44).

Dependent Claim 31

Dependent claim 31 depends from independent claim 24. Dependent claim 31 recites that the first and second coil arrays each form a zigzag pattern. For example, in the exemplary embodiment shown in Figure 3 of the present application, the first and second coil arrays 60 and 70 each form a zigzag pattern (Fig. 3 and paragraphs 42 and 44).

Independent Claim 37

Independent claim 37 recites a dryer, comprising a cabinet, a drum provided in the cabinet and in rotational communication with a motor, and a heater assembly coupled to the drum, comprising a heater case having an air passage formed therein, a plate positioned in the heater case so as to partition the air passage into an upper passage and a lower passage, and independent first and second coil arrays provided in the air passage, wherein the first coil array crosses the plate multiple times so as to alternately position a plurality of first coils thereof in the upper and lower passages, and the second coil array crosses the plate multiple times so as to alternately position a plurality of second coils thereof in the upper and lower passages such that the first and second coils positioned in the upper passage form an alternating pattern, and the first and second coils positioned in the lower passage form an alternating pattern, wherein each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate, and wherein upper

and lower portions of each of the first and second coil arrays are positioned along centerlines of the upper and lower passages, respectively.

For example, in the exemplary embodiment shown in Figures 1-2 of the present application, the dryer comprises a cabinet 3, a drum 12 provided in the cabinet 3 and in rotational communication with a motor 32, and a heater assembly 18 coupled to the drum 12 (Figs. 1-2 and paragraphs 26-28). In the exemplary embodiment shown in Figure 3 of the present application, the heater assembly 18 comprises a heater case 53 having an air passage formed therein, a plate 56 positioned in the heater case 53 so as to partition the air passage into an upper passage 53a and a lower passage 53b, and independent first and second coil arrays 60 and 70 provided in the air passage (Fig. 3 and paragraphs 37-40). The first coil array 60 crosses the plate 56 multiple times so as to alternately position a plurality of first coils 61-66 thereof in the upper and lower passages 53a and 53b, and the second coil array 70 crosses the plate 56 multiple times so as to alternately position a plurality of second coils 71-76 thereof in the upper and lower passages 53a and 53b such that the first and second coils 61, 63, 65, 72, 74 and 76 positioned in the upper passage 53a form an alternating pattern, and the first and second coils 62, 64, 66, 71, 73 and 75 positioned in the lower passage 53b form an alternating pattern (Fig. 3 and paragraphs 41-43). Each of the plurality of first coils 61-66 is positioned substantially directly across from a corresponding second coil of the plurality of second coils 71-76 on the opposite side of the plate 56, and upper (coils 61, 63 and 65 of the first coil array 60 and coils 72, 74 and 76 of the second coil array 70) and lower (coils 62, 64 and 66 of the first coil array 60 and

coils 71, 73 and 75 of the second coil array 70) portions of each of the first and second coil arrays 60 and 70 are positioned along centerlines of the upper and lower passages 53a and 53b, respectively (Fig. 3 and paragraph 46).

Dependent Claim 40

Dependent claim 40 depends from independent claim 37. Dependent claim 40 recites that at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages. For example, in the exemplary embodiment shown in Figure 3 of the present application, at least one of the plurality of first coils 61-66 is positioned between two adjacent second coils 71-76, and at least one of the plurality of second coils 71-76 is positioned between two adjacent first coils 61-66 in each of the upper and lower passages 53a and 53b (Fig. 3 and paragraphs 41-44).

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1-4, 6, 7, 9, 20, 37, 38 and 40 are obvious under 35 U.S.C. §103(a) over U.S. Patent No. 5,925,273 to Sherrill (hereinafter “Sherrill”) in view of U.S. Patent No. 4,700,495 to Drews et al. (hereinafter “Drews”).
2. Whether claims 10-13, 15, 16, 18, 21, 23-29, 31, 32, 39 and 41 are obvious under 35 U.S.C. §103(a) over Sherrill.

In the section below entitled “arguments,” Applicant sets forth separate arguments for each of claims 1, 6, 10, 15, 20, 21, 24, 26-29, 31 and 37-41. Applicant respectfully submits that each of claims 1, 6, 10, 15, 20, 21, 24, 26-29, 31 and 37-41 stands and falls separately from one another.

ARGUMENT

The present application includes four independent claims, namely, independent claims 1, 10, 24 and 37. These claims recite different features as may be evidenced by the discussion below. However, for ease of discussion, in some instances, similar features may be discussed with respect to one another. This is not an admission that the claims are the same, or that they stand or fall together. Rather, this is an attempt to narrow the number of issues and limit the

number of arguments. While arguments may be similar for different claims, it should be understood that differently claimed features are expressly recited in different claims.

It is respectfully submitted that independent claims 1, 10, 24 and 37 define patentable subject matter, as discussed below. Dependent claims 2-4, 6, 7, 9, 11-13, 15, 16, 18, 20, 21, 23, 25-30, 31, 32, and 38-41 respectively depend from independent claims 1, 10, 24 and 37, and therefore define patentable subject matter for at least this reason. Further, each of dependent claims 6, 15, 20, 21, 26-29, 31 and 38-41 recites features that further and independently distinguish over the applied prior art.

I. Rejection Under 35 U.S.C. §103(a) over Sherrill and Drews

The Office Action rejects claims 1-4, 6, 7, 9, 20, 37, 38 and 40 under 35 U.S.C. §103(a) over Sherrill in view of Drews. This rejection is respectfully traversed.

Independent Claim 1

Independent claim 1 is directed to a dryer that includes a heater assembly. The heater assembly comprises a heater case having an air passage formed therein, a plate that partitions the air passage into an upper passage and a lower passage, and independent first and second coil arrays provided in the air passage. The first coil array crosses the plate multiple times such that a plurality of first coils of the first coil array are alternately positioned in the upper and lower passages, and the second coil array crosses the plate multiple times such that a plurality of second coils of the second coil array are alternately positioned in the upper and lower passages. The first and second coils positioned in the upper passage form an alternating pattern in the

upper passage, and the first and second coils positioned in the lower passage form an alternating pattern in the lower passage such that each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate. Sherrill neither discloses nor suggests the features of independent claim 1, or the claimed combination of features.

Sherrill discloses a multistage heater assembly. As shown in Figures 1 and 2 of Sherrill, incoming air (designated by the arrow A) flows first across a first heater element 10a (compared in the Office Action to the claimed first coil array), and then across a second heater element 10b (compared in the Office Action to the claimed second coil array). As shown in the side view of the heater assembly in Figure 2 of Sherrill, the first heater element 10a includes six coils (compared in the Office Action to the claimed plurality of first coils), with three coils positioned adjacent one another above a plate 14, and three coils positioned adjacent one another below the plate 14 so as to form two parallel rows of first coils which face each other from opposite sides of the plate 14. A single crossover portion 22a extends through a cutout 24 in the plate 14 to connect the first coils (of the first heater element 10a) above the plate 14 to the first coils below the plate 14. Likewise, the second heater element 10b includes six coils (compared in the Office Action to the claimed plurality of second coils), with three adjacent coils positioned above the plate 14 facing three adjacent coils positioned below the plate 14, with the upper and lower coils of the second heater element 10b connected by a single crossover portion 22b that extends through a cutout in the plate 14.

As clearly shown in Figure 2 of Sherrill, the first heater element 10a crosses the plate 14 only once, where the crossover portion 22a extends from the upper side of the plate 14, through the cutout 24 and to the lower side of the plate 14. Likewise, the second heater element 10b crosses the plate 14 only once, where the crossover portion 22b extends from the upper side of the plate 14, through the cutout 24 and to the lower side of the plate 14. Sherrill neither discloses nor suggests that the first heater element 10a crosses the plate 14 multiple times, nor that the second heater element 10b crosses the plate 14 multiple times, as do the first and second coil arrays recited in independent claim 1.

Additionally, the individual coils of the first heater element 10a are positioned sequentially, followed by a sequential positioning of the individual coils of the second heater element 10b. There is no alternating or intermixing of the coils between the first and second heater elements, and thus the coils of the first and second heater elements 10a and 10b can not form any type of alternating pattern, either above or below the plate 14. Thus, Sherrill neither discloses or suggests that the coils of the first and second elements 10a and 10b form an alternating pattern, either above or below the plate 14, as do the plurality of first and second coils recited in independent claim 1.

Further, the coils of the first heater element 10a positioned above the plate 14 are positioned directly across from only the coils of the first heater element 10a positioned below the plate 14. Likewise, the coils of the second heater element 10b positioned above the plate 14 are positioned directly across from only the coils of the second heater element 10b positioned

below the plate 14. Sherrill neither discloses nor suggests that the coils of the first element 10a are positioned directly across the plate 14 from the coils of the second element 10b, as are the plurality of first and second coils recited in independent claim 1.

The Office Action combines Sherrill with Drews, asserting that Drews allegedly teaches the claimed multiple crossings of the plate. Applicant respectfully disagrees. Drews discloses a dryer with a heater 33, the heater 33 having a heater element 82 mounted on a plate member 84 within a heater box 40. The heater element 82 is suspended beneath the plate member 84 from a plurality of insulation posts 86, and is held above the plate member 84 by the plurality of insulation posts 86, as shown in Figure 5 of Drews. The heater element 82 is arranged in an open figure eight pattern above the plate member 84, and below the plate member 84 (see Figure 6 and column 4/lines 4-9 of Drews). Openings 87 in the plate member 84 facilitate air flow around the element 82 to increase efficiency and reliability.

In particular, attention is drawn to the side sectional view of the heater 33 shown in Figure 3 of Drews, the front sectional view of the heater 33 shown in Figure 4 of Drews, and the top sectional view of the heater 33 shown in Figure 6 of Drews. In these views, it can be seen that the proximal and distal ends of the resistance coil that make up the heater element 82 are plugged into upper and lower terminals of the connection plug 98. The proximal end of the coil is plugged into the lower terminal of the connection plug 98, and the coil extends below the plate member 84, from a proximal end of the plate member 84 to a distal end of the plate member 84 and back to the proximal end, in a figure 8 pattern. At the end of the figure eight

pattern formed below the plate member 84, the coil appears to extend around the proximal end of the plate member 84, and in a similar figure eight pattern above the plate member 84. At the end of the figure eight pattern above the plate member 84, the distal end of the coil is plugged into the upper connection plug 98.

The heater element 82 is a single, continuous coil that extends along upper and lower sides of the plate member 84, and around an outer periphery of the proximal end of the plate member 84. However, at no point does any portion of the element 82 cross the plate member 84, let alone multiple times, as do the first and second coil arrays recited in independent claim 1. Further, it is noted that Drews clearly discloses that the openings 87 in the plate member 84 are to facilitate circulation and improve efficiency, and the element 82 does not pass through any of the openings 87. Rather, Drews necessarily teaches away from any portion of the heater 33 obstructing these openings 87.

Additionally, because the element 82 consists of a single continuous coil, Drews necessarily neither discloses nor suggests first and second coil arrays having first and second coils that form alternating patterns above and below the plate, as recited in independent claim 1.

Accordingly, it is respectfully submitted that independent claim 1 is allowable over the applied combination, and thus the rejection of independent claim 1 under 35 U.S.C. §103(a) over Sherrill and Drews should be reversed. Dependent claims 2-4, 6, 7, 9, 20 and 38 are allowable at least for the reasons set forth above with respect to independent claim 1, from which they

depend, as well as for their added features. Further, claims 6, 20 and 38 each stands and falls separately from one another, and from independent claim 1.

Dependent Claim 6

Dependent claim 6 depends from independent claim 1, and therefore dependent claim 6 is allowable at least for this reason. However, dependent claim 6 recites additional features such that dependent claim 6 does not stand or fall together with independent claim 1. For example, dependent claim 6 recites that upper and lower portions of each of the first and second coil arrays are positioned along centerlines of the upper and lower passages, respectively.

In contrast, Sherrill is silent as to the relative positioning of the coils of the first and second heater elements 10a and 10b within the passages defined by the opposite sides of the plate 14 and the housing. Likewise, Drews is silent as to the relative positioning of the element within the passages defined by the plate member and the heater box 40. Thus, Sherrill and Drews, either alone or in combination, neither disclose nor suggest the features of claim 6, let alone in combination with claim 1, and therefore claim 6 is allowable for this additional reason.

Dependent Claim 20

Dependent claim 20 depends from claim 3, which depends from independent claim 1, and therefore dependent claim 20 is allowable at least for this reason. However, dependent claim 20 recites additional features such that dependent claim 20 does not stand or fall together with independent claim 1 and/or dependent claim 3. For example, dependent claim 3 recites that the first coil array is symmetrical to the second coil array along a predetermined line of

symmetry of the air passage. Dependent claim 20 then recites that the plate is positioned along the predetermined line of symmetry of the air passage.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the first heater element 10a are positioned on opposite sides of the plate 14 from each other near an incoming end of the airflow through the housing, and the coils of the second heater element 10b are positioned on opposite sides of the plate 14 from each other at an outgoing end of the airflow through the housing. Thus, if the coils of the first and second heater elements 10a and 10b were to be in any way symmetrical, the line of symmetry would extend vertically through the horizontally positioned plate 14 so that the first heater element 10a would be on the left side of the line of symmetry, and the second heater element 10b would be on the right side of the line of symmetry. However, such a line of symmetry would effectively bisect the plate 14. Thus, Sherrill neither discloses nor suggests that the plate 14 is positioned along such a line of symmetry, as recited in claim 20. Further, as set forth above, Drews' element 82 is a single, continuous coil. Drews necessarily neither discloses nor suggests a second element, let alone that such a second element would be symmetrical with the disclosed first element 82 about a line of symmetry established by the plate member 84. Thus, Sherrill and Drews, either alone or in combination, neither disclose nor suggest the features of claim 20, let alone in combination with claims 3 and 1, and therefore claim 20 is allowable for this additional reason.

Dependent Claim 38

Dependent claim 38 depends from independent claim 1, and therefore dependent claim 38 is allowable at least for this reason. However, dependent claim 38 recites additional features such that dependent claim 38 does not stand or fall together with independent claim 1. For example, dependent claim 38 recites that at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages.

In contrast, as clearly shown in Figures 1-2 of Sherrill, coils of the first heater element 10a cannot be positioned between two coils of the second heater element 10b, nor can two coils of the second heater element 10b be positioned between two coils of the first heater element 10a. Further, as set forth above, Drews' element 82 is a single, continuous coil, and thus necessarily cannot be positioned between coils of such a second element. Thus, Sherrill and Drews, either alone or in combination, neither disclose nor suggest the features of claim 38, let alone in combination with claim 1, and therefore claim 38 is allowable for this additional reason.

Independent Claim 37

Independent claim 37 is directed to a dryer, comprising a cabinet, a drum provided in the cabinet and in rotational communication with a motor, and a heater assembly coupled to the drum. The heater assembly comprises a heater case having an air passage formed therein, a plate positioned in the heater case so as to partition the air passage into an upper passage and a lower passage, and independent first and second coil arrays provided in the air passage. The first coil

array crosses the plate multiple times so as to alternately position a plurality of first coils thereof in the upper and lower passages, and the second coil array crosses the plate multiple times so as to alternately position a plurality of second coils thereof in the upper and lower passages such that the first and second coils positioned in the upper passage form an alternating pattern, and the first and second coils positioned in the lower passage form an alternating pattern. Each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate, and upper and lower portions of each of the first and second coil arrays are positioned along centerlines of the upper and lower passages, respectively. As set forth above, Sherrill neither discloses nor suggests the features of independent claim 37, or the claimed combination of features, and Drews fails to overcome the deficiencies of Sherrill.

More specifically, Sherrill neither discloses nor suggests that the first heater element 10a crosses the plate 14 multiple times, nor that the second heater element 10b crosses the plate 14 multiple times, as do the first and second coil arrays recited in independent claim 37. Additionally, Sherrill neither discloses or suggests that the coils of the first and second elements 10a and 10b form an alternating pattern, either above or below the plate 14, as do the plurality of first and second coils recited in independent claim 37. Further, Sherrill neither discloses nor suggests that the coils of the first element 10a are positioned directly across the plate 14 from the coils of the second element 10b, as are the plurality of first and second coils recited in independent claim 37.

Further, as set forth above, Drews fails to overcome the deficiencies of Sherrill. More specifically, as set forth above, Drews neither discloses nor suggests that the element 82 crosses the plate member 84 at any point, let alone multiple times, as do the first and second coil arrays recited in independent claim 37. Further, because the element 82 consists of a single continuous coil, Drews necessarily neither discloses nor suggests first and second coil arrays having first and second coils that form alternating patterns above and below the plate, as recited in independent claim 37.

Accordingly, it is respectfully submitted that independent claim 37 is allowable over the applied combination, and thus the rejection of independent claim 37 under 35 U.S.C. §103(a) over Sherrill and Drews should be reversed. Dependent claim 40 is allowable at least for the reasons set forth above with respect to independent claim 37, from which it depends, as well as for its added features. In particular, claim 40 stands and falls separately from independent claim 1.

Dependent Claim 40

Dependent claim 40 depends from independent claim 37, and therefore is allowable at least for this reason. However, dependent claim 40 recites additional features such that dependent claim 40 does not stand or fall together with independent claim 37. For example, dependent claim 40 recites that at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages.

In contrast, as set forth above, Sherrill neither discloses nor suggests that a coil of the first heater element 10a is positioned between two coils of the second heater element 10b, nor that a coil of the second heater element 10b is positioned between two coils of the first heater element 10a, either above or below the plate 14. Likewise, as set forth above, the element 82 disclosed by Drews is a single continuous coil, and thus necessarily cannot have separate coils that are positioned as specifically recited in claim 40. Thus, Sherrill and Drews neither disclose nor suggest the features of claim 40, let alone in combination with independent claim 37, and therefore claim 40 is allowable for this additional reason.

II. Rejection Under 35 U.S.C. §103(a) over Sherrill

The Office Action rejects claims 10-13, 15, 16, 18, 21, 23-29, 31, 32, 39 and 41 under 35 U.S.C. §103(a) over Sherrill.

Independent Claim 10

Independent claim 10 is directed to a heater assembly for a dryer. The heater assembly includes a heater case having an air passage formed therein, and a plate that partitions the air passage into an upper passage and a lower passage. The heater assembly also includes independent first and second coil arrays provided in the air passage, wherein the first coil array comprises a plurality of first coils alternately positioned in the upper and lower passages, and the second coil array comprises a plurality of second coils alternately positioned in the upper and lower passages such that the first and second coils positioned in the upper passage form an

alternating pattern in the upper passage, and the first and second coils positioned in the lower passage form an alternating pattern in the lower passage, wherein each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate. As set forth above, Sherrill neither discloses nor suggests each of the features of independent claim 10, or the claimed combination of features. Further, it would not have been obvious to modify the heater assembly disclosed by Sherrill in the manner suggested in the Office Action.

More specifically, as set forth above, Sherrill neither discloses nor suggests that an upper coil from the first heater element 10a is positioned between two upper coils from the second heater element 10b, nor that an upper coil from the second heater element 10b is positioned between two upper coils from the first heater element 10a, as are the upper first and second coils recited in independent claim 10. Likewise, Sherrill neither discloses nor suggests that a lower coil from the first heater element 10a is positioned between two lower coils from the second heater element 10b, nor that a lower coil from the second heater element 10b is positioned between two lower coils from the first heater element 10a, as are the lower first and second coils recited in independent claim 10. Thus, Sherrill necessarily neither discloses nor suggests that the upper coils of the first and second heater elements 10a and 10b form an alternating pattern above the plate 14, and the lower coils of the first and second heater elements 10a and 10b form an alternating pattern below the plate 14, as do the upper and lower first and second coils recited in independent claim 10.

Further, it would not have been obvious to modify Sherrill's sequential arrangement of the coils of the first and second heater elements 10a and 10b to produce an alternating pattern of coils as specifically recited in independent claim 10. Such a rearrangement of the coils of the first and second heater elements 10a and 10b disclosed by Sherrill to in any way alternate, intermingle, or overlap the coils of the first and second heater elements 10a and 10b would require a complete redesign of Sherrill's plate 14, mounting structure, crossover portions 22a and 22b, and terminal connections 28 to retain independent control of the heater elements 10a and 10b. Such a modification would significantly affect the structural, mechanical, and electrical integrity of Sherrill's design, while adding complexity and cost. Further, as set forth in the present application, the claimed arrangement of features allows for uniform flow, distribution and discharge of heated air from the case into the drum, whether one coil array is energized (for a low heat drying cycle) or both coil arrays are energized (for a high heat drying cycle). The claimed arrangement of features also prevents the heater case from being heated locally and intensively even if power is applied to only one of the coil arrays. Thus, it is respectfully submitted that the features of independent claim 10 are not rendered obvious by the teachings of Sherrill.

Accordingly, it is respectfully submitted that independent claim 10 is allowable over Sherrill, and thus the rejection of independent claim 10 under 35 U.S.C. §103(a) over Sherrill should be reversed. Dependent claims 11-13, 15, 16, 18, 21, 23, 39 and 41 are allowable at least for the reasons set forth above with respect to independent claim 10, from which they depend,

as well as for their added features. In particular, dependent claims 15, 21, 39 and 41 each stands and falls separately from one another, and from independent claim 10.

Dependent Claim 15

Dependent claim 15 depends from independent claim 10, and therefore dependent claim 15 is allowable at least for this reason. However, dependent claim 15 recites additional features such that dependent claim 6 does not stand or fall together with independent claim 10. For example, dependent claim 15 recites that upper and lower portions of each coil array are positioned along centerlines of the upper and lower passages, respectively.

In contrast, Sherrill is silent as to the relative positioning of the coils of the first and second heater elements 10a and 10b within the passages defined by the opposite sides of the plate 14 and the housing. Thus, Sherrill neither discloses nor suggests the features of claim 15, and therefore claim 15 is allowable for this additional reason.

Dependent Claim 21

Dependent claim 21 depends from 12, which depends from independent claim 10, and therefore dependent claim 21 is allowable at least for this reason. However, dependent claim 21 recites additional features such that dependent claim 21 does not stand or fall together with independent claim 10 and/or dependent claim 12. For example, dependent claim 12 recites that the first coil array is symmetrical to the second coil array along a predetermined line of symmetry of the air passage. Dependent claim 21 then recites the plate is positioned along the predetermined line of symmetry of the air passage.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the first heater element 10a are positioned on opposite sides of the plate 14 from each other near an incoming end of the airflow through the housing, and the coils of the second heater element 10b are positioned on opposite sides of the plate 14 from each other at an outgoing end of the airflow through the housing. Thus, if the coils of the first and second heater elements 10a and 10b were to be in any way symmetrical, the line of symmetry would extend vertically through the horizontally positioned plate 14 so that the first heater element 10a would be on the left side of the line of symmetry, and the second heater element 10b would be on the right side of the line of symmetry. However, such a line of symmetry would effectively bisect the plate 14. Thus, Sherrill neither discloses nor suggests that the plate 14 is positioned along such a line of symmetry, as recited in claim 21. Thus, Sherrill neither discloses nor suggests the features of claim 21, let alone in combination with claims 12 and 10, and therefore claim 21 is allowable for this additional reason.

Dependent Claim 39

Dependent claim 39 depends from independent claim 10, and therefore dependent claim 39 is allowable at least for this reason. However, dependent claim 39 recites additional features such that dependent claim 39 does not stand or fall together with independent claim 10. For example, dependent claim 39 recites that at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages.

In contrast, as clearly shown in Figures 1-2 of Sherrill, coils of the first heater element 10a cannot be positioned between two coils of the second heater element 10b, nor can two coils of the second heater element 10b be positioned between two coils of the first heater element 10a. Thus, Sherrill neither discloses nor suggests the features of claim 39, let alone in combination with claim 10, and therefore claim 39 is allowable for this additional reason.

Dependent Claim 41

Dependent claim 41 depends from independent claim 10, and therefore dependent claim 41 is allowable at least for this reason. However, dependent claim 41 recites additional features such that dependent claim 41 does not stand or fall together with independent claim 10. For example, dependent claim 41 recites that the independent first and second coil arrays each alternately cross the plate between the upper and lower passages multiple times so as to form the alternating patterns of first and second coils in the upper and lower passages.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the first heater element 10a cross the plate 14 only once, and the coils of the second heater element 10b cross the plate 14 only once. Neither of the heater elements 10a and 10b crosses the plate 14 multiple times. Further, as set forth above, the coils of the first and second heater elements 10a and 10b remain segregated and sequentially aligned, and do not form alternating patterns. Thus, Sherrill neither discloses nor suggests the features of claim 39, let alone in combination with claim 10, and therefore claim 39 is allowable for this additional reason.

Independent Claim 24

Independent claim 24 is directed to a heater assembly for a dryer, including a heater case, a plate provided in the case so as to partition the case into an upper portion and a lower portion, a first coil array comprising a plurality of first coils, the plurality of first coils comprising a plurality of upper first coils positioned in the upper portion of the case, and a plurality of lower first coils positioned in the lower portion of the case, and a second coil array comprising a plurality of second coils, the plurality of second coils comprising a plurality of upper second coils positioned in the upper portion of the case, and a plurality of lower second coils positioned in the lower portion of the case, wherein the plurality of upper first and second coils are arranged in the upper portion such that an upper first coil is disposed between two upper second coils and an upper second coil is disposed between two upper first coils so as to form an alternating pattern of upper first and second coils in the upper portion, and the plurality of lower first and second coils are arranged in the lower portion such that a lower first coil is disposed between two lower second coils and a lower second coil is disposed between two lower first coils so as to form an alternating pattern of lower first and second coils in the lower portion. As set forth above, Sherrill neither discloses nor suggests the features of independent claim 24, or the claimed combination of features.

More specifically, as set forth above, Sherrill neither discloses nor suggests that an upper coil from the first heater element 10a is positioned between two upper coils from the second heater element 10b, nor that an upper coil from the second heater element 10b is positioned

between two upper coils from the first heater element 10a, as are the upper first and second coils recited in independent claim 24. Likewise, Sherrill neither discloses nor suggests that a lower coil from the first heater element 10a is positioned between two lower coils from the second heater element 10b, nor that a lower coil from the second heater element 10b is positioned between two lower coils from the first heater element 10a, as are the lower first and second coils recited in independent claim 24. Thus, Sherrill necessarily neither discloses nor suggests that the upper coils of the first and second heater elements 10a and 10b form an alternating pattern above the plate 14, and the lower coils of the first and second heater elements 10a and 10b form an alternating pattern below the plate 14, as do the upper and lower first and second coils recited in independent claim 24.

Further, as set forth above, it would not have been obvious to modify Sherrill's heater assembly in the manner suggested in the Office Action. Rather, such a modification would significantly affect the structural, mechanical, and electrical integrity of Sherrill's design, while adding complexity and cost. Further, as set forth in the present application, the claimed arrangement of features allows for uniform flow, distribution and discharge of heated air from the case into the drum, whether one coil array is energized (for a low heat drying cycle) or both coil arrays are energized (for a high heat drying cycle). The claimed arrangement of features also prevents the heater case from being heated locally and intensively even if power is applied to only one of the coil arrays. Thus, it is respectfully submitted that the features of independent claim 24 are not rendered obvious by the teachings of Sherrill.

Accordingly, it is respectfully submitted that independent claim 24 is allowable over Sherrill, and thus the rejection of independent claim 24 under 35 U.S.C. §103(a) over Sherrill should be withdrawn. Dependent claims 25-29, 31 and 32 are allowable at least for the reasons set forth above with respect to independent claim 24, from which they depend, as well as for their added features. In particular, dependent claims 26-29 and 31 each stands and falls separately from one another, and from independent claim 24.

Dependent Claim 26

Dependent claim 26 depends from claim 25, which depends from independent claim 24, and therefore dependent claim 26 is allowable at least for this reason. However, dependent claim 26 recites additional features such that dependent claim 26 does not stand or fall together with independent claim 24 and/or dependent claim 25. For example, dependent claim 25 recites that the first coil array is configured to operate as a single unit, and that the plurality of first coils are arranged in the first coil array such that the upper and lower first coils form an alternating pattern. Dependent claim 26 then recites that the first coil array crosses the plate each time the first coil array alternates between the upper and lower first coils so as to alternately position first coils in the upper and lower passages.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the first heater element 10a cross the plate 14 only once. Thus, the coils of the first heater element 10a do not cross the plate 14 each time the coils of the first heater element 10a alternate between upper and lower coils to position the coils in upper and lower passages (above and below the plate 14).

Thus, Sherrill neither discloses nor suggests the features of claim 26, let alone in combination with claims 25 and 24, and therefore claim 26 is allowable for this additional reason.

Dependent Claim 27

Dependent claim 27 depends from claim 26, which depends from claim 25, which depends from independent claim 24, and therefore dependent claim 27 is allowable at least for this reason. However, dependent claim 27 recites additional features such that dependent claim 27 does not stand or fall together with independent claim 24 and/or dependent claim 25 and/or dependent claim 26. For example, in addition to the features recited in dependent claims 25 and 26 set forth above, dependent claim 27 recites that the second coil array is configured to operate as a single unit independent of the first coil array, and that the plurality of second coils are arranged in the second coil array such that the upper and lower second coils form an alternating pattern.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the second heater element 10b are sequentially arranged, and thus the coils positioned above the plate 14 and the coils positioned below the plate 14 do not form an alternating pattern. Thus, Sherrill neither discloses nor suggests the features of claim 27, let alone in combination with claims 26, 25 and 24, and therefore claim 27 is allowable for this additional reason.

Dependent Claim 28

Dependent claim 28 depends from claim 27, which depends from claim 26, which depends from claim 25, which depends from independent claim 24, and therefore dependent

claim 28 is allowable at least for this reason. However, dependent claim 28 recites additional features such that dependent claim 28 does not stand or fall together with independent claim 24 and/or dependent claim 25 and/or dependent claim 26 and/or dependent claim 27. For example, in addition to the features recited in dependent claims 25, 26 and 27 set forth above, dependent claim 28 recites that the alternating pattern formed by the upper and lower first coils is a mirror image of the alternating pattern formed by the upper and lower second coils.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the first heater assembly 10a are sequentially arranged, and do not form an alternating pattern. Likewise, the coils of the second heater element 10b are sequentially arranged, and do not form an alternating pattern. Thus, these coils necessarily cannot form alternating patterns that are mirror images of one another, as recited in claim 28. Thus, Sherrill neither discloses nor suggests the features of claim 28, let alone in combination with claims 27, 26, 25 and 24, and therefore claim 28 is allowable for this additional reason.

Dependent Claim 29

Dependent claim 29 depends from claim 27, which depends from claim 26, which depends from claim 25, which depends from independent claim 24, and therefore dependent claim 29 is allowable at least for this reason. However, dependent claim 29 recites additional features such that dependent claim 29 does not stand or fall together with independent claim 24 and/or dependent claim 25 and/or dependent claim 26 and/or dependent claim 27. For example, in addition to the features recited in dependent claims 25, 26 and 27 set forth above,

dependent claim 29 recites that the second coil array is configured to cross the plate each time the second coil array alternates between the upper and lower second coils.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the second heater element 10b cross the plate 14 only once. Thus, the coils of the second heater assembly 10b do not cross the plate 14 each time the coils of the second heater element 10b alternate between upper and lower coils to position the coils in upper and lower passages (above and below the plate 14). Thus, Sherrill neither discloses nor suggests the features of claim 29, let alone in combination with claims 27, 26, 25 and 24, and therefore claim 29 is allowable for this additional reason.

Dependent Claim 31

Dependent claim 31 depends from independent claim 24, and therefore dependent claim 31 is allowable at least for this reason. However, dependent claim 31 recites additional features such that dependent claim 31 does not stand or fall together with independent claim 24. For example, dependent claim 31 recites that the first and second coil arrays each form a zigzag pattern.

In contrast, as set forth above, in Sherrill's heater assembly, the coils of the first heater element 10a cross the plate 14 only once, and the coils of the second heater element 10b cross the plate 14 only once. Thus, neither the coils of the first heater element 10a nor the second heater element 10b form a zigzag pattern, as do the first and second coil arrays recited in claim

31. Thus, Sherrill neither discloses nor suggests the features of claim 31, let alone in combination with claim 24, and therefore claim 31 is allowable for this additional reason.

CLAIMS APPENDIX

The attached Claims Appendix contains a copy of the claims involved in the appeal.

EVIDENCE APPENDIX

Applicant has not provided any evidence with this appeal.

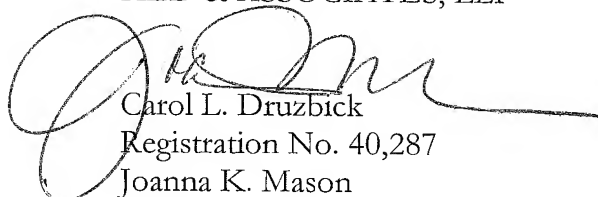
RELATED PROCEEDINGS APPENDIX

There are not related decisions or proceedings associated with this appeal.

CONCLUSION

It is respectfully submitted that the above arguments show that each of claims 1-4, 6, 7, 9-13, 15, 16, 18, 20, 21, 23-29, 31, 32 and 37-41 are patentable over the applied references. Based at least on these reasons, it is respectfully submitted that each of claims 1-4, 6, 7, 9-13, 15, 16, 18, 20, 21, 23-29, 31, 32 and 37-41 defines patentable subject matter. Applicant respectfully requests that the rejections of 1-4, 6, 7, 9-13, 15, 16, 18, 20, 21, 23-29, 31, 32 and 37-41 set forth in the January 14, 2008 Office Action be reversed.

Respectfully submitted,
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CLAIMS APPENDIX

1. A dryer, comprising:

a cabinet;

a drum provided in the cabinet and in rotational communication with a motor;

and

a heater assembly coupled to the drum, comprising:

a heater case having an air passage formed therein;

a plate that partitions the air passage into an upper passage and a lower passage; and

independent first and second coil arrays provided in the air passage, wherein the first coil array crosses the plate multiple times such that a plurality of first coils of the first coil array are alternately positioned in the upper and lower passages, and the second coil array crosses the plate multiple times such that a plurality of second coils of the second coil array are alternately positioned in the upper and lower passages, wherein the first and second coils positioned in the upper passage form an alternating pattern in the upper passage, and the first and second coils positioned in the lower passage form an alternating pattern in the lower passage such that each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate.

2. The dryer as claimed in claim 1, wherein the plurality of first coils of the first coil array are positioned at a predetermined distance from the plurality of second coils of the second coil array.

3. The dryer as claimed in claim 1, wherein the first coil array is symmetrical to the second coil array along a predetermined line of symmetry of the air passage.

4. The dryer as claimed in claim 1, wherein the plurality of first coils of the first coil array are electrically connected as a single unit, and the plurality of second coils of the second coil array are electrically connected as a single unit that is separate from the first coil array.

6. The dryer as claimed in claim 1, wherein upper and lower portions of each of the first and second coil arrays are positioned along centerlines of the upper and lower passages, respectively.

7. The dryer as claimed in claim 1, wherein the plurality of coils of the first coil array are positioned at a predetermined interval along an air flow direction from the corresponding plurality of coils of the second coil array.

9. The dryer as claimed in claim 1, wherein the first and second coil arrays are configured to be separately controlled.

10. A heater assembly for a dryer, comprising:

a heater case having an air passage formed therein;

a plate that partitions the air passage into an upper passage and a lower passage;

and

independent first and second coil arrays provided in the air passage, wherein the first coil array comprises a plurality of first coils alternately positioned in the upper and lower passages, and the second coil array comprises a plurality of second coils alternately positioned in the upper and lower passages such that the first and second coils positioned in the upper passage form an alternating pattern in the upper passage, and the first and second coils positioned in the lower passage form an alternating pattern in the lower passage, wherein each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate.

11. The heater assembly as claimed in claim 10, wherein the plurality of first coils of the first coil array are positioned at a predetermined distance from the plurality of second coils of the second coil array.

12. The heater assembly as claimed in claim 10, wherein the first coil array is symmetrical to the second coil array along a predetermined line of symmetry of the air passage.

13. The heater assembly as claimed in claim 10, wherein the plurality of first coils of the first coil array are electrically connected as a single unit, and the plurality of second coils of the second coil array are electrically connected as a single unit that is separate from the first coil array.

15. The heater assembly as claimed in claim 10, wherein upper and lower portions of each coil array are positioned along centerlines of the upper and lower passages, respectively.

16. The heater assembly as claimed in claim 10, wherein the plurality of first coils of the first coil array are positioned at a predetermined interval in an airflow direction from the corresponding plurality of second coils of the second coil array.

18. The heater assembly as claimed in claim 10, wherein the first and second coil arrays are configured to be separately controlled.

20. The dryer as claimed in claim 3, wherein the plate is positioned along the predetermined line of symmetry of the air passage.

21. The heater assembly as claimed in claim 12, wherein the plate is positioned along the predetermined line of symmetry of the air passage.

23. A dryer comprising the heater assembly of claim 10.

24. A heater assembly for a dryer, comprising:

a heater case;

a plate provided in the case so as to partition the case into an upper portion and a lower portion;

a first coil array comprising a plurality of first coils, the plurality of first coils comprising a plurality of upper first coils positioned in the upper portion of the case, and a plurality of lower first coils positioned in the lower portion of the case; and

a second coil array comprising a plurality of second coils, the plurality of second coils comprising a plurality of upper second coils positioned in the upper portion of the case, and a plurality of lower second coils positioned in the lower portion of the case, wherein the plurality of upper first and second coils are arranged in the upper portion such that an upper first coil is disposed between two upper second coils and an upper second coil is disposed between two upper first coils so as to form an alternating pattern of upper first and second coils in the upper portion, and the plurality of lower first and second coils are arranged in the lower portion such that a lower first coil is disposed between two lower second coils and a lower second coil is

disposed between two lower first coils so as to form an alternating pattern of lower first and second coils in the lower portion.

25. The heater assembly as claimed in claim 24, wherein the first coil array is configured to operate as a single unit, and wherein the plurality of first coils are arranged in the first coil array such that the upper and lower first coils form an alternating pattern.

26. The heater assembly as claimed in claim 25, wherein the first coil array crosses the plate each time the first coil array alternates between the upper and lower first coils so as to alternately position first coils in the upper and lower passages.

27. The heater assembly as claimed in claim 26, wherein the second coil array is configured to operate as a single unit independent of the first coil array, and wherein the plurality of second coils are arranged in the second coil array such that the upper and lower second coils form an alternating pattern.

28. The heater assembly as claimed in claim 27, wherein the alternating pattern formed by the upper and lower first coils is a mirror image of the alternating pattern formed by the upper and lower second coils.

29. The heater assembly as claimed in claim 27, wherein the second coil array is configured to cross the plate each time the second coil array alternates between the upper and lower second coils.

31. The heater assembly as claimed in claim 24, wherein the first and second coil arrays each form a zigzag pattern.

32. A dryer comprising the heater of claim 24.

37. A dryer, comprising:

a cabinet;

a drum provided in the cabinet and in rotational communication with a motor;

and

a heater assembly coupled to the drum, comprising:

a heater case having an air passage formed therein;

a plate positioned in the heater case so as to partition the air passage into an upper passage and a lower passage; and

independent first and second coil arrays provided in the air passage, wherein the first coil array crosses the plate multiple times so as to alternately position a plurality of first coils thereof in the upper and lower passages, and the second coil array crosses the plate

multiple times so as to alternately position a plurality of second coils thereof in the upper and lower passages such that the first and second coils positioned in the upper passage form an alternating pattern, and the first and second coils positioned in the lower passage form an alternating pattern, wherein each of the plurality of first coils is positioned substantially directly across from a corresponding second coil of the plurality of second coils on the opposite side of the plate, and wherein upper and lower portions of each of the first and second coil arrays are positioned along centerlines of the upper and lower passages, respectively.

38. The dryer as claimed in claim 1, wherein at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages.

39. The heater assembly as claimed in claim 10, wherein at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages.

40. The dryer as claimed in claim 37, wherein at least one of the plurality of first coils is positioned between two adjacent second coils, and at least one of the plurality of second coils is positioned between two adjacent first coils in each of the upper and lower passages.

41. The heater assembly as claimed in claim 10, wherein the independent first and second coil arrays each alternately cross the plate between the upper and lower passages multiple times so as to form the alternating patterns of first and second coils in the upper and lower passages.

EVIDENCE APPENDIX

No evidence is submitted with this appeal.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings or decisions associated with this appeal.